

THAT WHICH IS CLAIMED:

1. A method of forming a template for a countertop, the template being usable to form a countertop configured for application to an existing countertop-receiving structure, said method comprising:

collecting data with a single portable data collection module and according to a coordinate system established with respect to a countertop-receiving structure, the data comprising a plurality of points directly corresponding to and defining the countertop-receiving structure;

processing the data so as to form a closed-boundary representation of a countertop corresponding to the countertop-receiving structure; and

dimensioning the countertop representation, the countertop representation forming a template configured so as to be usable to form the countertop, the formed countertop thereby being correspondingly engageable with the countertop-receiving structure.

2. A method according to Claim 1 further comprising establishing a base horizontal plane with respect to the countertop-receiving structure so as to establish an origin of a Z-axis.

3. A method according to Claim 2 further comprising establishing an X-axis having an origin corresponding to the Z-axis origin, the X-axis extending along the base horizontal plane.

4. A method according to Claim 3 further comprising establishing a positive Y-direction with respect to the X-axis origin.

5. A method according to Claim 1 wherein collecting data further comprises receiving a signal directly from each of the plurality of points with the data collection module, the data collection module being configured so as to be capable of determining a coordinate of each point with respect to the coordinate system.

6. A method according to Claim 5 further comprising disposing a sound emitter at each of the plurality of points wherein the sound emitter is configured to emit a sound signal directly from each point, the sound signal being receivable by the data collection module.

7. A method according to Claim 5 further comprising disposing a light emitter at each of the plurality of points wherein the light emitter is configured to emit a light signal directly from each point, the light signal being receivable by the data collection module.

8. A method according to Claim 1 wherein collecting data further comprises determining a coordinate of each point with respect to the coordinate system with an articulating arm extending from the data collection module directly to the respective point.

9. A method according to Claim 1 wherein collecting data further comprises photogrammetrically determining a coordinate of each point with respect to the coordinate system with a plurality of digital images of each point taken from a plurality of image acquisition locations remotely disposed from the countertop-receiving structure, each point being indicated with a marker disposed directly thereon, the marker being configured to have a sharp contrast with respect to the respective point.

10. A method according to Claim 1 wherein processing the data further comprises arranging the plurality of points according to a two-dimensional coordinate system on at least one of a horizontal plane and a vertical plane.

11. A method according to Claim 1 wherein processing the data further comprises adding an overhang component to the countertop representation, the overhang component being configured to extend outwardly of the countertop-receiving structure.

12. A method according to Claim 1 wherein processing the data further comprises defining an accommodation for an accessory feature on the countertop representation, the accommodation being configured to correspond to the accessory feature upon engagement of the countertop with the countertop-receiving structure.

13. A method according to Claim 1 wherein processing the data further comprises adding a backslash component to the countertop representation, the backslash component being configured to extend generally perpendicularly to the countertop.

14. A method according to Claim 1 wherein dimensioning a countertop representation further comprises adding at least one of a numerical dimension and a note to the countertop representation.

15. A method according to Claim 1 further comprising configuring the template to be cooperable with computer-aided design/computer-aided manufacturing (CAD/CAM) computer software following dimensioning of the countertop representation.

16. A method according to Claim 1 further comprising configuring the template to be cooperable with a Computer Numerical Control (CNC) machine following dimensioning of the countertop representation.

17. A method according to Claim 1 further comprising configuring the template to as to be transmittable over an electronic data communication link following dimensioning of the countertop representation.

18. A method according to Claim 1 further comprising forming the countertop according to the template following dimensioning of the countertop representation.

19. A method of forming a countertop, the countertop being configured for application to an existing countertop-receiving structure, said method comprising:

collecting data with a single portable data collection module and according to a coordinate system established with respect to a countertop-receiving structure, the data comprising a plurality of points directly corresponding to and defining the countertop-receiving structure;

processing the data so as to form a closed-boundary representation of a countertop corresponding to the countertop-receiving structure; and

dimensioning the countertop representation, the countertop representation forming a template configured so as to be usable to form the countertop; and

forming the countertop according to the template, the formed countertop thereby being correspondingly engageable with the countertop-receiving structure.

20. A method according to Claim 19 further comprising establishing a base horizontal plane with respect to the countertop-receiving structure so as to establish an origin of a Z-axis.

21. A method according to Claim 20 further comprising establishing an X-axis having an origin corresponding to the Z-axis origin, the X-axis extending along the base horizontal plane.

22. A method according to Claim 21 further comprising establishing a positive Y-direction with respect to the X-axis origin.

23. A method according to Claim 19 wherein collecting data further comprises receiving a signal directly from each of the plurality of points with the data collection module, the data collection module being configured so as to be capable of determining a coordinate of each point with respect to the coordinate system.

24. A method according to Claim 19 further comprising disposing a sound emitter at each of the plurality of points wherein the sound emitter is configured to emit a

sound signal directly from each point, the sound signal being receivable by the data collection module.

25. A method according to Claim 19 further comprising disposing a light emitter at each of the plurality of points wherein the light emitter is configured to emit a light signal directly from each point, the light signal being receivable by the data collection module.

26. A method according to Claim 19 wherein collecting data further comprises determining a coordinate of each point with respect to the coordinate system with an articulating arm extending from the data collection module directly to the respective point.

27. A method according to Claim 19 wherein collecting data further comprises photogrammetrically determining a coordinate of each point with respect to the coordinate system with a plurality of digital images of each point taken from a plurality of image acquisition locations remotely disposed from the countertop-receiving structure, each point being indicated with a marker disposed directly thereon, the marker being configured to have a sharp contrast with respect to the respective point.

28. A method according to Claim 19 wherein processing the data further comprises arranging the plurality of points according to a two-dimensional coordinate system on at least one of a horizontal plane and a vertical plane.

29. A method according to Claim 19 wherein processing the data further comprises adding an overhang component to the countertop representation, the overhang component being configured to extend outwardly of the countertop-receiving structure.

30. A method according to Claim 19 wherein processing the data further comprises defining an accommodation for an accessory feature on the countertop

representation, the accommodation being configured to correspond to the accessory feature upon engagement of the countertop with the countertop-receiving structure.

31. A method according to Claim 19 wherein processing the data further comprises adding a backsplash component to the countertop representation, the backsplash component being configured to extend generally perpendicularly to the countertop.

32. A method according to Claim 19 wherein dimensioning a countertop representation further comprises adding at least one of a numerical dimension and a note to the countertop representation.

33. A method according to Claim 19 further comprising configuring the template to be cooperable with computer-aided design/computer-aided manufacturing (CAD/CAM) computer software following dimensioning of the countertop representation.

34. A method according to Claim 19 further comprising configuring the template to be cooperable with a Computer Numerical Control (CNC) machine following dimensioning of the countertop representation.

35. A method according to Claim 19 wherein forming the countertop further comprises forming the countertop at a location disposed remotely with respect to the countertop-receiving structure.

36. A method according to Claim 19 wherein forming the countertop further comprises forming the countertop with a Computer Numerical Control (CNC) machine according to the template.

37. A computer software program product executable by a computer device so as to facilitate a process for forming a template, the template being usable to form a

countertop corresponding to an existing countertop-receiving structure, said computer software program product comprising:

- an executable portion capable of directing the collection of data with a single portable data collection module and according to a coordinate system established with respect to a countertop-receiving structure, the data comprising a plurality of points directly corresponding to and defining the countertop-receiving structure;
- an executable portion capable of processing the data so as to form a closed-boundary representation of a countertop corresponding to the countertop-receiving structure; and
- an executable portion capable of dimensioning the countertop representation, the countertop representation forming a template configured so as to be usable to form the countertop, the formed countertop thereby being correspondingly engageable with the countertop-receiving structure.

38. A computer software program product according to Claim 37 further comprising an executable portion capable of establishing a base horizontal plane with respect to the countertop-receiving structure so as to establish an origin of a Z-axis.

39. A computer software program product according to Claim 38 further comprising an executable portion capable of establishing an X-axis having an origin corresponding to the Z-axis origin, the X-axis extending along the base horizontal plane.

40. A computer software program product according to Claim 39 further comprising an executable portion capable of establishing a positive Y-direction with respect to the X-axis origin.

41. A computer software program product according to Claim 37 wherein the executable portion capable of collecting data is further capable of directing the data collection module to receive a signal directly from each of the plurality of points.

42. A computer software program product according to Claim 41 further comprising an executable portion capable of determining a coordinate of each point with respect to the coordinate system from the respective signal received by the data collection module.

43. A computer software program product according to Claim 42 further comprising an executable portion capable of re-establishing the coordinate system upon relocation of the data collection module.

44. A computer software program product according to Claim 42 wherein the executable portion capable of collecting data is further capable of directing the data collection module to receive a sound signal from each of the plurality of points, each sound signal being emitted by a sound emitter disposed at the respective point.

45. A computer software program product according to Claim 42 wherein the executable portion capable of collecting data is further capable of directing the data collection module to receive a light signal from each of the plurality of points, each light signal being emitted by a light emitter disposed at the respective point.

46. A computer software program product according to Claim 37 wherein the executable portion capable of collecting data is further capable of determining a coordinate of each point from a positional signal generated by an articulating arm extending from the data collection module directly to the respective point.

47. A computer software program product according to Claim 37 wherein the executable portion capable of collecting data is further capable of photogrammetrically determining a coordinate of each point with respect to the coordinate system from a plurality of digital images of each point taken from a plurality of image acquisition locations remotely disposed from the countertop-receiving structure, each of the plurality of points being indicated with a marker configured to have a sharp contrast to the respective point.



48. A computer software program product according to Claim 37 wherein the executable portion capable of processing the data is further capable of arranging the plurality of points according to a two-dimensional coordinate system on at least one of a horizontal plane and a vertical plane.

49. A computer software program product according to Claim 37 wherein the executable portion capable of processing the data is further capable of defining a best-fit line between points.

50. A computer software program product according to Claim 37 wherein the executable portion capable of processing the data is further capable of defining a free-form line between points.

51. A computer software program product according to Claim 37 wherein the executable portion capable of processing the data is further capable of defining a line between points.

52. A computer software program product according to Claim 37 wherein the executable portion capable of processing the data is further capable of configuring an intersection of lines, each line being defined by a plurality of points, to facilitate formation of the closed-boundary countertop representation.

53. A computer software program product according to Claim 37 wherein the executable portion capable of processing the data is further capable of adding an overhang component to the countertop representation, the overhang component being configured to extend outwardly of the countertop-receiving structure.

54. A computer software program product according to Claim 37 wherein the executable portion capable of processing the data is further capable of defining an accommodation for an accessory feature on the countertop representation, the

accommodation being configured to correspond to the accessory feature upon engagement of the countertop with the countertop-receiving structure.

55. A computer software program product according to Claim 37 wherein the executable portion capable of processing the data is further capable of adding a backslash component to the countertop representation, the backslash component being configured to extend generally perpendicularly to the countertop.

56. A computer software program product according to Claim 37 wherein the executable portion capable of dimensioning a countertop representation is further capable of adding at least one of a numerical dimension and a note to the countertop representation.

57. A computer software program product according to Claim 37 further comprising an executable portion capable of configuring the template to be cooperable with computer-aided design/computer-aided manufacturing (CAD/CAM) computer software.

58. A computer software program product according to Claim 37 further comprising an executable portion capable of configuring the template to be cooperable with a Computer Numerical Control (CNC) machine.

59. A computer software program product according to Claim 37 further comprising an executable portion capable of configuring the template to as to be transmittable over an electronic data communication link.

60. A computer device for facilitating a process for forming a template, the template being usable to form a countertop corresponding to an existing countertop-receiving structure, said computer device comprising:

a processing portion for directing the collection of data with a single portable data collection module and according to a coordinate system established with

respect to a countertop-receiving structure, the data comprising a plurality of points directly corresponding to and defining the countertop-receiving structure;

a processing portion for processing the data so as to form a closed-boundary representation of a countertop corresponding to the countertop-receiving structure; and

a processing portion for dimensioning the countertop representation, the countertop representation forming a template configured so as to be usable to form the countertop, the formed countertop thereby being correspondingly engageable with the countertop-receiving structure.

61. A computer device according to Claim 60 further comprising a processing portion for establishing a base horizontal plane with respect to the countertop-receiving structure so as to establish an origin of a Z-axis.

62. A computer device according to Claim 61 further comprising a processing portion for establishing an X-axis having an origin corresponding to the Z-axis origin, the X-axis extending along the base horizontal plane.

63. A computer device according to Claim 62 further comprising a processing portion for establishing a positive Y-direction with respect to the X-axis origin.

64. A computer device according to Claim 60 wherein the processing portion for collecting data is further configured to direct the data collection module to receive a signal directly from each of the plurality of points.

65. A computer device according to Claim 64 further comprising a processing portion for determining a coordinate of each point with respect to the coordinate system from the respective signal received by the data collection module.

66. A computer device according to Claim 65 further comprising a processing portion for re-establishing the coordinate system upon relocation of the data collection module.

67. A computer device according to Claim 65 wherein the processing portion for collecting data is further configured to direct the data collection module to receive a sound signal from each of the plurality of points, each sound signal being emitted by a sound emitter disposed at the respective point.

68. A computer device according to Claim 65 wherein the processing portion for collecting data is further configured to direct the data collection module to receive a light signal from each of the plurality of points, each light signal being emitted by a light emitter disposed at the respective point.

69. A computer device according to Claim 60 wherein the processing portion for collecting data is further configured to determine a coordinate of each point from a positional signal generated by an articulating arm extending from the data collection module directly to the respective point.

70. A computer device according to Claim 60 wherein the processing portion for collecting data is further configured to photogrammetrically determine a coordinate of each point with respect to the coordinate system from a plurality of digital images of each point taken from a plurality of image acquisition locations remotely disposed from the countertop-receiving structure, each of the plurality of points being indicated with a marker configured to have a sharp contrast to the respective point.

71. A computer device according to Claim 60 wherein the processing portion for processing the data is further configured to arrange the plurality of points according to a two-dimensional coordinate system on at least one of a horizontal plane and a vertical plane.

72. A computer device according to Claim 60 wherein the processing portion for processing the data is further configured to define a best-fit line between points.

73. A computer device according to Claim 60 wherein the processing portion for processing the data is further configured to define a free-form line between points.

74. A computer device according to Claim 60 wherein the processing portion for processing the data is further configured to define a line between points.

75. A computer device according to Claim 60 wherein the processing portion for processing the data is further configured to configure an intersection of lines, each line being defined by a plurality of points, to facilitate formation of the closed-boundary countertop representation.

76. A computer device according to Claim 60 wherein the processing portion for processing the data is further configured to add an overhang component to the countertop representation, the overhang component being configured to extend outwardly of the countertop-receiving structure.

77. A computer device according to Claim 60 wherein the processing portion for processing the data is further configured to define an accommodation for an accessory feature on the countertop representation, the accommodation being configured to correspond to the accessory feature upon engagement of the countertop with the countertop-receiving structure.

78. A computer device according to Claim 60 wherein the processing portion for processing the data is further configured to add a backsplash component to the countertop representation, the backsplash component being configured to extend generally perpendicularly to the countertop.

79. A computer device according to Claim 60 wherein the processing portion for dimensioning a countertop representation is further configured to add at least one of a numerical dimension and a note to the countertop representation.

80. A computer device according to Claim 60 further comprising a processing portion for configuring the template to be cooperable with computer-aided design/computer-aided manufacturing (CAD/CAM) computer software.

81. A computer device according to Claim 60 further comprising a processing portion for configuring the template to be cooperable with a Computer Numerical Control (CNC) machine.

82. A computer device according to Claim 60 further comprising a processing portion for configuring the template to as to be transmittable over an electronic data communication link.